REMARKS

Initially, the applicant acknowledges, with appreciation, the indication that claim 16 is allowable and that claims 20, 32 and 41 would be allowable if rewritten in independent form including the features of the base claim and any intervening claims.

Claims 1-5, 10, 11, 13-17, 20, 21, 24, 29, 30, 32, 33, 37-39, 41, 42 and 47 have been amended to improve form, claim 12 has been canceled and new claims 48-50 have been added. Claims 1-11 and 13-50 are now pending in this application.

Claims 20, 32 and 41 have been rewritten in independent form and are believed to be in condition for allowance. Accordingly, allowance of claims 20, 32 and 41 is respectfully requested.

The Office Action indicates that the amendments to the specification made in the Preliminary Amendment filed May 3, 2000 were not entered due to incorrect page and line numbers provided. The present amendment rewrites the paragraph at page 21, lines 21-27. No new matter has been introduced. Accordingly, entry of the changes to the specification is respectfully requested.

Claims 2, 5, 10-12, 15-18, 20, 23, 28, 30, 33, 37, 39, 42 and 47 have been objected to for a number of informalities. Claims 2, 10, 15, 30, 33, 37, 39, 42 and 47 have been amended to improve form and to correct many of the informalities noted.

The applicant notes, however, that the phrase "one of" has been objected to in numerous claims. For example, the phrase "one of a contention channel and a data channel" in claim 5 has been objected to and the Office Action indicates that this phrase should be changed to "either a contention channel or a data channel." The Office Action indicates that the channel cannot be allocated as both a contention channel and a data channel (Office Action – page 2). The phrase

"one of a contention channel and a data channel," however, does not connote that the channel can be allocated as both a contention channel and a data channel at the same time. The phrase merely indicates that the channel is allocated as one of the two types of channels. The channels can, however, be dynamically reassigned, as discussed in the applicant's specification. In any event, the applicant believes that the phrase "one of a contention channel and a data channel" is clear. Therefore, this phrase and similar phrases throughout the claims have not been changed.

Accordingly, withdrawal of the objections to pending claims 2, 5, 10, 11, 15-18, 20, 23, 28, 30, 33, 37, 39, 42 and 47 is respectfully requested.

Claims 1-4 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Natarajan (U.S. Patent No. 5,699,355). The rejection is respectfully traversed.

Claim 1 recites a method of transmitting time division multiplexed data from a satellite terminal to a satellite that includes providing the satellite terminal with at least one command that allocates to the satellite terminal a number of timeslots within each of at least one frame for data transmission, where the command identifies the number of allocated timeslots in a first order. Claim 1, as amended, also recites converting the timeslots identified by the command to corresponding timeslot locations within each frame in a second order in accordance with a timeslot reordering scheme to distribute the allocated timeslots throughout each frame, where the second order comprises a non-sequential order within the at least one frame. Natarajan does not disclose or suggest these features.

For example, the Office Action states that Natarajan discloses that satellite 20 provides a control message that allocates to the satellite terminal a number of timeslots within each frame and points to Fig. 4, and portions of columns 4-6 for support (Office Action – page 4). The Office Action also states that Natarajan discloses converting the timeslots identified by the

command to corresponding timeslot locations within each frame in a second order and indicates that the second order in Natarajan corresponds to a contiguous order (Office Action – pages 4-5). Claim 1, as amended, recites that the second order comprises a non-sequential order within the at least one frame. Natarajan, as admitted in the Office Action, discloses that the second order is a contiguous order.

For at least this reason, Natarajan does not disclose or suggest each of the features of claim 1. Accordingly, withdrawal of the rejection and allowance of claim 1 are respectfully requested.

Claims 2-4 are dependent on claim 1 and are believed to be allowable for at least the reasons claim 1 is allowable. In addition, these claims recite additional features not disclosed or suggested by Natarajan.

For example, claim 2 recites selecting the timeslot reordering scheme to distribute data from respective satellite terminals to different timeslots throughout each frame. Since Natarajan does not disclose the claimed timeslot reordering scheme, Natarajan cannot disclose selecting the timeslot reordering scheme to distribute data from respective satellite terminals to different timeslots throughout each frame.

The Office Action states that Natarajan discloses that the satellite can select whether to assign timeslots for respective satellite terminals in contiguous or non-contiguous order and points to col. 5, lines 39-48 for support (Office Action – page 5). Selecting non-contiguous timeslots by the satellite, however, is not equivalent to selecting a timeslot reordering scheme, where the timeslot reordering scheme is used to perform the claimed converting, as recited in claim 1. In other words, Natarajan may disclose that satellite 20 assigns non-contiguous timeslots when a connection request is accepted. Natarajan, however, does not disclose the

claimed converting, where timeslots identified by the command are converted to a second order in accordance with a timeslot reordering scheme. Natarajan, therefore, cannot disclose selecting a timeslot reordering scheme, as recited in claim 2.

For at least this additional reason, withdrawal of the rejection and allowance of claim 2 are respectfully requested.

Claims 17-19, 21, 22, 26-29, 31, 33, 34-38, 40, 42, 43 and 45-47 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Montpetit (U.S. Patent No. 6,366,761). Claims 30 and 39 are also apparently rejected under § 102 based on Montpetit. The rejection is respectfully traversed.

Claim 17 recites a method for performing bandwidth allocations. Claim 17, as amended, recites selectively sending an allocation command identifying the allocated transmission slots to the terminal based upon the distributing, where the allocation command includes a slot numbering identifier identifying one of a plurality of slot numbering patterns.

The Office Action states that Montpetit discloses sending a bandwidth allocation response along with the allocated transmission slots to a requesting ground terminal and points to col. 11, lines 4-27 and col. 17, lines 15-30 for support (Office Action – page 6). Montpetit at col. 11, lines 4-27 discloses that the satellite transmits the bandwidth allocation response to a requesting terminal via a downlink transmission frequency and the satellite terminal transmits data packets with the corresponding priority status at the allocated time and frequency. Montpetit at col. 17, lines 15-30 discloses that the bandwidth allocation processor (BAP) uses a bandwidth allocation table and reports the outcome of the allocation process to all the ground terminals that requested uplink bandwidth. Neither of these portions of Montpetit, or any other

portions, discloses or suggests that the allocation command includes a slot numbering identifier identifying one of a plurality of slot numbering patterns, as recited in amended claim 17.

For at least this reason, Montpetit does not disclose or suggest each of the features of claim 17. Accordingly, withdrawal of the rejection and allowance of claim 17 are respectfully requested.

Claims 29 and 38, as amended, recite features similar to the features discussed above with respect to claim 17. For reasons similar to those discussed above with respect to claim 17 Montpetit does not disclose or suggest each of the features of claims 29 and 38. Accordingly, withdrawal of the rejections and allowance of claims 29 and 38 are respectfully requested.

Claims 18, 19, 22, 26-28, 30, 31, 33-37, 39, 40, 43, 43 and 45-47 variously depend on claims 17, 29 and 38 and are believed to be allowable for at least the reasons claims 17, 29 and 38 are allowable. In addition, these claims recite additional features not disclosed or suggested by Montpetit.

For example, claim 19 recites receiving a follow-up request from the terminal, the follow-up request being associated with the volume request and specifying additional desired transmission slots and selectively discarding the follow-up request based upon traffic load. Claims 31 and 40 recite similar features. The Office Action states that Montpetit discloses receiving bandwidth requests for an additional data packet and points to col. 9, lines 53-67 for support. The Office Action also states that the BAP inherently discards the request after a predetermined time period expires and points to col. 16, lines 29-45 and col. 8, lines 42-48 for support (Office Action – pages 6-7). Montpetit may disclose that if a predetermined time period expires and the request has not been satisfied, the BAP may drop the request (Montpetit – col.

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16, lines 39-45). This, however, is not equivalent to selectively discarding the follow-up request based upon traffic load, as recited in claim 19. In other words, Montpetit merely discloses dropping a follow-up request based on the expiration of a timer. Such a disclosure cannot be fairly construed to disclose selectively discarding a follow-up request based upon traffic load.

For at least these additional reasons, withdrawal of the rejection and allowance of claims 19, 31 and 40 are respectfully requested.

Claim 21, as amended, recites that the bandwidth request is a rate request requesting a first number of transmission slots and the method further comprises placing the rate request in a queue, receiving another bandwidth request that is a rate request associated with a fallback rate, the fallback rate requesting a different number of transmission slots of the frame than the first number of transmission slots, and discarding the queued rate request.

The Office Action states that Montpetit discloses receiving another rate bandwidth request with higher priority and discarding the queue rate request and points to col. 13, lines 49-52 for support (Office Action – page 7). The Office Action also indicates that the fallback rate request is not defined and therefore reads on Montpetit's new rate request with higher priority (Office Action – page 7). The applicant respectfully disagrees.

Claim 21, as amended, clarifies that the fallback rate requests a different number of transmission slots of the frame than the first number of transmission slots. Montpetit may disclose that rules stored in BAP memory 87 determine which slots previously allocated for transmission of lower priority data packets may be preempted in favor of higher priority data packets (Montpetit – col. 13, lines 46-52).

This, however, is not equivalent to receiving another bandwidth request that is a rate request, where the other rate request is associated with a fallback rate that requests a different

number of transmission slots of the frame than the first number of transmission slots, and discarding the queued rate request, as recited in amended claim 21. Claims 33 and 42 recite similar features.

For at least these additional reasons, withdrawal of the rejection and allowance of claims 21, 33, and 42 are respectfully requested.

Claims 5-15, 23-25 and 44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Montpetit. The rejection is respectfully traversed.

Claim 5 recites a bandwidth on demand apparatus in a communication system that includes a processor, a receiver and a transmitter that transmits commands to the terminals. The processor allocates each of the channels as one of a contention channel and a data channel, where the contention channels allow the terminals to transmit the bandwidth requests and the data channels allow the terminals to transmit the terminal traffic. Claim 5, as amended, also recites that the processor dynamically changes the allocation of at least one channel from a data channel to a contention channel depending on an amount of bandwidth requests pending at any given time. Montpetit does not disclose or suggest these features.

For example, the Office Action states that Montpetit discloses that the BAP allocates each of the channels as either a contention channel or a data channel. The Office Action admits that Montpetit does not disclose that the BAP dynamically changes the allocation of channels depending on an amount of bandwidth requests pending at any given time (Office Action – page 10). The Office Action further states that it would have been obvious to enable the processor to dynamically change the allocation of channels according to an amount of bandwidth requests pending at any given time so that varying bandwidth requests can be properly accommodated to increase the efficiency and flexibility of the apparatus and points to col. 13, line 65 to col. 14,

line 3 and col. 18, lines 19-22 and 34-42 for support (Office Action – pages 10-11). The applicant respectfully disagrees.

Montpetit at col. 13, line 65 to col. 14, line 3 discloses that the bandwidth allocation rules are programmable and may be changed by a network administrator in response to changing user needs, network traffic patterns or developing technologies. The network administrator transmits the new rules to the satellite to replace the rules in use at the time. This portion of Montpetit does not disclose or suggest <u>dynamically</u> changing the allocation of channels. In contrast, Montpetit discloses that a network administrator may transmit new rules to the satellite, which would, as best understood by the applicant, be done in an off-line mode. Even if, for the sake or argument, this portion of Montpetit could be construed to disclose dynamically changing the allocation of channels depending on an amount of bandwidth requests pending at any given time, this portion of Montpetit cannot be construed to disclose or suggest dynamically changing the allocation of at least one channel from a data channel to a contention channel, as recited in amended claim 5.

Montpetit at col. 18, lines 19-22 and 34-42 discloses that the bandwidth allocation rules are programmable and various preferences and adjustments to the handling of bandwidth request messages may be entered in the BAP memory when updating the bandwidth allocation rules. Similar to the discussion above with respect to columns 13 and 14 of Montpetit, this portion of Montpetit merely discloses that rules in the BAP memory may be modified. This portion of Montpetit also does not disclose <u>dynamically</u> changing the allocation of a channel, much less dynamically changing the allocation of at least one channel from a data channel to a contention channel, as recited in amended claim 5.

For at least these reasons, Montpetit does not disclose or suggest each of the features of claim 5. Accordingly, withdrawal of the rejection and allowance of claim 5 are respectfully requested.

Claims 6-10 depend on claim 5 and are believed to be allowable for at least the reasons claim 5 is allowable. In addition, these claims recite additional features not disclosed or suggested by Montpetit.

For example, claim 9 recites that the processor is further operable to generate and transmit a signal via said transmitter to one of said terminals, to which selected ones of said channels have been allocated, indicating that a channel release request from said one terminal to release said selected channel allocations has been processed, said one terminal being provided with a timer and being programmable to wait until said timer expires before transmitting another one of said bandwidth requests.

The Office Action admits that Montpetit does not disclose the claimed timer, but states that it would have been obvious "to include a timer in the requesting terminal and program the terminal to wait until the timer expires before transmitting another one of the bandwidth requests to ensure that the bandwidth deallocation request previously submitted is successfully received and processed as part of transmission error control as known in the art" (Office Action – page 12). The applicant respectfully disagrees.

First, the Office Action points to no portion of Montpetit as providing motivation for modifying Montpetit to include the claimed timer, much less that the terminal is programmable to wait until the timer expires before transmitting another one of the bandwidth requests, as recited in claim 9. The statement in the Office Action merely amounts to a conclusory statement

and provides no objective motivation for modifying Montpetit to include the features recited in claim 9.

For at least this additional reasons, withdrawal of the rejection and allowance of claim 9 are respectfully requested.

Claim 11 recites a processing device for providing channel allocations that includes a first queue and a second queue, where the processing device stores high priority rate requests in the first queue and low priority rate requests in the second queue. Claim 11, as amended, also recites that the processing device includes a third queue and a fourth queue, where the processing device stores high priority volume requests in the third queue and low priority volume requests in the fourth queue. Claim 11, as amended, also recites that the volume requests are preempted for at least one frame by allocation of said timeslots to at least one of said rate requests stored in said first queue and said rate requests stored in said second queue. These features were previously recited in claim 12.

The Office Action admits that Montpetit fails to disclose a first queue and a second queue, but states that it would have been obvious to include the claimed first and second queue in the onboard computer queue (OBC) 79 of Montpetit "for fast queue transaction without altering the functions of the OBC 79" (Office Action – page 14). The Office Action also admits that Montpetit fails to disclose the claimed third and fourth queues, but states that it would have been obvious to incorporate such queues "to accommodate the respective high and low volume requests and apply the preemption to the high and low volume requests in the third and fourth queues to favor volume requests with high priority" (Office Action – page 14).

First, as admitted in the Office Action, Montpetit does not disclose the claimed first, second, third and fourth queues, much less that that volume requests stored in the third and

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fourth queues are preempted for at least one frame by allocation of timeslots to at least one of rate requests stored in the first queue and rate requests stored in the second queue, as recited in claim 11. The statement in the Office Action indicating that such features are allegedly obvious to one of ordinary skill in the art provides no objective motivation as to why it would have been obvious to include such features in Montpetit and does not satisfy the requirements of 35 U.S.C. § 103.

The applicant asserts that the only motivation to modify Montpetit to include the claimed first, second, third and fourth queues storing high and low priority rate and volume requests and the claimed preempting of frames in the queues as recited in amended claim 11 comes from the applicant's disclosure. Such motivation may not be properly relied upon under 35 U.S.C. §103.

For at least these reasons, Montpetit does not disclose or suggest each of the features of claim 11. Accordingly, withdrawal of the rejection and allowance of claim 11 are respectfully requested.

Claims 13-15 depend on claim 11 and are believed to be allowable for at least the reasons claim 11 is allowable. Accordingly, withdrawal of the rejection and allowance of claims 13-15 are respectfully requested.

Claims 23-25 and claim 44 depend on claims 17 and 38, respectively, and are believed to be allowable for at least the reasons claims 17 and 38 are allowable. Accordingly, withdrawal of the rejection and allowance of claims 23-25 and 44 are respectfully requested.

NEW CLAIMS

New claims 48-50 have been added. Claims 48-50 are dependent on claims 17, 29, and 38, respectively, and are believed to be allowable for at least the reasons their respective independent claims are allowable. In addition, these claims recite additional features not disclosed or suggested by the prior art. For example, claim 48 recites that the plurality of slot numbering patterns comprises four slot numbering patterns. Claims 49 and 50 recite similar features. The prior art does not disclose or suggest these features. Accordingly, allowance of claims 48-50 is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, the applicant respectfully requests withdrawal of the outstanding rejections and the timely allowance of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-0383 and please credit any excess fees to such deposit account.

Respectfully submitted,
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